What is claimed is:

1. A method of enhancing spectral data, said data comprising M discrete intensity values within one of a range of wavelength values, a range of frequency values and a range of mass values, said method comprising:

a) applying a first function to the spectral data to obtain an inverse transform of the spectrum,

b) zero-filling said inverse transform, and

c) applying a second function to the zero-filled inverse transform to obtain a spectrum comprising N discrete intensity values within said range of wavelength, frequency or mass values, wherein N>M.

2. A method according to claim 1, further comprising the step of:

i) apodizing said inverse transform, before zero-filling and applying the second function.

3. A method according to claim 2, wherein the second function is applied to the apodized zero-filled inverse transform.

4. A method according to claim 1, wherein when the inverse transform is zero-filled by a factor Z, and wherein N is Z times greater than M.

5. A method according to claim 1, wherein the spectral data comprises an atomic emission spectrum.

6. A method according to claim 1, wherein the spectral data is in the ultra-violet, visible and/or infrared domain.

7. A method according to claim 1, wherein the spectral data comprises a mass spectrum.

8. A method according to claim 1, wherein the first function is a Fourier Transform function and second function is an inverse Fourier Transform function.

9. A method according to claim 1, wherein the spectral data and the spectrum are a spectrum in the frequency domain.

10. A computer readable medium embodying a computer program which, when executed, carries out the method of claim 1.

11. A processor configured:

(a) to receive spectral data from a spectrometer, the spectral data comprising M discrete intensity values within one of a range of wavelength values, a range of frequency values and a range of mass values;

(b) to apply a first function to the spectral data to obtain an inverse transform of the spectrum,

(c) to zero-fill said inverse transform, and

(d) to apply a second function to the zero-filled inverse transform to obtain a spectrum comprising N discrete intensity values within said one of said ranges of wavelength, frequency and mass values, and wherein N>M.

12. A spectrometer arranged to generate an array of spectral data comprising M discrete intensity values within one of a range of wavelength values, a range of frequency values and a range of mass values, the spectrometer including the processor of claim 11.